

**Notice of Allowability**

Application No.

10/049,532

Examiner

William K Cheung

Applicant(s)

ARMBRUST ET AL.

Art Unit

1713

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to RCE.
2. ☒ The allowed claim(s) is/are 29-54.
3. ☐ The drawings filed on \_\_\_\_\_ are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All    b) ☐ Some\*    c) ☐ None    of the:
  1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),  
Paper No./Mail Date 0806, 0414
4. ☐ Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_.
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_.

## **DETAILED ACTION**

### ***Request for Continued Examination***

1. The request filed on August 6, 2004 for a Request for Continued Examination (RCE) under 37 CFR 1.53(d) based on parent Application No. 10/049,532 is acceptable and a RCE has been established. An action on the RCE follows.
2. The examiner acknowledges the receipt of IDS filed August 6, 2004, and April 14, 2004, and has considered the references in the IDS for the instant U.S. Patent applications.

### ***Allowances***

3. Claims 29-54 are allowed.
4. The following is an examiner's statement of reasons for allowance:  
  
As of the date of this office action, the examiner has not located or identified any reference that can be used singularly or in combination with another reference including

Art Unit: 1713

the closest prior art of Chemical Abstract 84: 123536w, volume 84 number 18, May 3, 1976 to render the present invention anticipated or obvious to one of ordinary skill in the art.

*The invention of claims 29-54 relates to a **sol-gel coating material** comprising:*

*(A) **an acrylate copolymer solution** comprising at least one acrylate copolymer comprising a reaction product of:*

*a1) at least one (**methacrylic ester** that is substantially free of acid groups,*

*a2) at least **one ethylenically unsaturated monomer** comprising at least one hydroxyl group per molecule and is substantially free of acid groups, and*

*a3) at least one **ethylenically unsaturated monomer** comprising at least one acid group per molecule that is convertible into a corresponding acid anion group;*

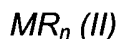
*(B) a **stock coating material** comprising a hydrolysis and condensation product of at least one hydrolyzable silane of the general formula I*



*wherein R is at least one of a hydrolyzable group, a hydroxyl group, and a nonhydrolyzable group with the proviso that there is at least one hydrolyzable group in the stock coating material; and*

*(C) a **sol** comprising a hydrolysis, condensation, and complexing product of*

*C1) at least one **hydrolyzable metal compound** of the general formula II*



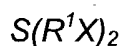
wherein:

*M* is at least one of aluminum, titanium, and zirconium,

*R* is at least one of a hydrolyzable group, a hydroxyl group, and a nonhydrolyzable group with the proviso that there is at least one hydrolyzable group in the compound, and

$$n = 3 \text{ or } 4;$$

C2) at least one organic thio compound of the general formula III



wherein:

***R*<sup>1</sup> comprises a divalent radical** derived from at least one of a first organic compound, a second organic compound, and a third organic compound:  
wherein the first organic compound is at least one of an alkane, an alkene, cycloalkane, cycloalkene, an alkylcycloalkane, an alkylcycloalkene, an alkenylcycloalkane, and an alkenylcycloalkene, wherein the first organic compound is substituted or unsubstituted, wherein the first organic compound is linear or branched, and wherein the first organic compound contains no heteroatom or at least one heteroatom in the compound; wherein the second organic compound is at least one of a substituted aromatic, an unsubstituted aromatic, a substituted heteroaromatic, and an unsubstituted heteroaromatic; and wherein the third organic compound is at least one of an aromatic and a heteroaromatic, wherein the aromatic and the heteroaromatic are substituted with

Art Unit: 1713

*a substituent that is at least one of alkyl-, alkenyl-, cycloalkyl-, cycloalkenyl-, alkylcycloalkyl-, alkylcycloalkenyl-, alkenylcycloalkyl-, and alkenylcycloalkenyl, wherein the substituent is substituted or unsubstituted, and wherein the substituent contains no heteroatom or at least one heteroatom in the substituent;*

***X is at least one of -OH, -SH, and -NHR<sup>2</sup>, wherein R<sup>2</sup> is at least one of a hydrogen atom, an alkyl group containing 1 to 6 carbon atoms, and a cycloalkyl group containing 1 to 6 carbon atoms; and***

***C3) at least one hydrolyzable silane of the general formula I.***

The closest prior art Chemical Abstract 84 (123536w) discloses a sol-gel coating material which has the components a1, a2, a3, B, C1 and C3 of claim 29. However, the chemical abstract (123536w) is silent on the thio compound (Formula III) of claim 29. Therefore, the sol-gel coating of the prior art and the presently claimed sol-gel are not identical and it would not be apparent to one of ordinary skill in art to use the sol-gel coating teachings from said chemical abstract listing to obtain the thio compound feature of claim 29-54. The invention of claims 29-54 is allowed.

In light of the above discussion, it is evident as to why the present claims are patentable over the prior art.

Art Unit: 1713

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, and to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### **Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William K Cheung whose telephone number is (571) 272-1097. The examiner can normally be reached on Monday-Friday 9:00AM to 2:00PM; 4:00PM to 8:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David WU can be reached on (571) 272-1114. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

Application/Control Number: 10/049,532

Page 7

Art Unit: 1713

you have questions on access to the Private PAIR system, contact the Electronic  
Business Center (EBC) at 866-217-9197 (toll-free).



William K. Cheung

Primary Patent Examiner

August 26, 2004

**WILLIAM K. CHEUNG**  
**PRIMARY EXAMINER**